Characterization of soliton compounds in a passively mode-locked high power fiber laser

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Résumé en anglais	We characterize soliton complexes in a high power double-clad erbium-doped fiber laser passively mode-locked through nonlinear polarization evolution. Such complexes involve some hundreds of solitons and form self-organized or disorganized patterns analogous to the states of the matter. Experimentally these soliton compounds are characterized through the autocorrelation trace, the optical spectrum and the oscilloscope trace which is limited due to its finite bandwidth. We perform here a reconstruction of the experimental results thus allowing us to identify the temporal distribution of the solitons inside the cavity. The reconstruction allows us to clarify and either to confirm or to correct the former intuitive interpretation. Especially, a soliton 'spray' is identified.
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